METADATA: Panel Rotation Cohort File

Dataset: panel_rotation_cohort_2023.csv

OVERVIEW

- **Purpose**: Longitudinal household panel with rotating design

- **Design**: 4-wave rotating panel with 25% annual refresh rate

- **Base Year**: 2023 (Wave 1)

- **Rotation Pattern**: EU-SILC methodology adapted for SADC

- **Sample Size**: 1,000 households at Wave 1

- **Periodicity**: Quarterly interviews (90-day intervals)

PANEL DESIGN SPECIFICATIONS

- **Rotation Groups**: 4 equal groups (250 households each)

- **Panel Duration**: Maximum 4 waves per household

- **Refresh Rate**: 25% new households each wave

- **Overlap**: 75% sample overlap between consecutive waves

- **Attrition Rate**: Approximately 5% per wave

VARIABLE DEFINITIONS

IDENTIFICATION VARIABLES

- **panel_household_id** [String]: Unique panel household ID (PH#####)

- **wave** [Integer]: Survey wave number (1-4)

- **wave_date** [Date]: Interview date for wave

- **rotation_group** [Integer]: Rotation group assignment (1-4)
    - Group 1: Waves 1-4
    - Group 2: Waves 2-5
    - Group 3: Waves 3-6
    - Group 4: Waves 4-7

PANEL STATUS

- **panel_status** [String]: Household panel status
    - Continuing: Interviewed in previous wave

- New: First interview in panel

- Attrited: Lost to follow-up

- **interview_result** [String]: Wave-specific outcome

  - Complete: Full interview completed

  - Partial: Incomplete interview

  - Refused: Refused participation

  - Not found: Could not locate household

HOUSEHOLD COMPOSITION

- **household_size** [Integer]: Number of household members

- **employment_adults** [Integer]: Number of employed adults

- **school_children** [Integer]: Number of children in school

ECONOMIC MEASURES

- **monthly_income** [Numeric]: Total household income (local currency)

- **income_change** [Numeric]: Change from previous wave

- **employment_change** [Integer]: Change in employed adults

- **household_size_change** [Integer]: Change in household size

WELLBEING INDICATORS

- **chronic_illness_any** [Binary]: Any member with chronic illness (0/1)

- **food_security_score** [Numeric]: Food security index (0-100)

- **dwelling_quality_index** [Numeric]: Housing quality composite score

- **asset_index** [Numeric]: Standardized asset ownership score

PANEL WEIGHTS

- **panel_weight_base** [Numeric]: Initial selection weight

- **attrition_weight** [Numeric]: Adjustment for attrition

- **panel_weight_final** [Numeric]: Final analysis weight

ROTATION SCHEDULE

Wave	Year	Quarter	Groups Active	Sample Size
1	2023	Q1	1,2,3,4	1000

Wave	Year	Quarter	Groups Active	Sample Size
2	2023	Q2	1,2,3,4	1000
3	2023	Q3	1,2,3,4	1000
4	2023	Q4	1,2,3,4	1000
5	2024	Q1	2,3,4,5	1000
6	2024	Q2	3,4,5,6	1000

ATTRITION PATTERNS

- **Wave-to-wave attrition**: 5-7%
- **Cumulative attrition by Wave 4**: 15-20%
- **Differential attrition**: Higher in urban areas, mobile populations

WEIGHTING METHODOLOGY

1. **Base Weights**: Inverse selection probability
2. **Attrition Adjustment**: Propensity model using:
   - Demographic characteristics
   - Previous wave participation
   - Geographic factors
3. **Calibration**: Post-stratification to population totals

LONGITUDINAL ANALYSIS VARIABLES

- **Income transitions**: Calculated between waves
- **Employment dynamics**: Entry/exit from labor force
- **Household composition changes**: Births, deaths, migration
- **Poverty transitions**: Movement above/below poverty line

MISSING DATA PATTERNS

- **Item non-response**: 3-5% for income variables
- **Wave non-response**: Treated as temporary attrition
- **Imputation**: Hot-deck within rotation groups

DATA QUALITY INDICATORS

- **Response consistency**: Logical checks across waves

- **Seam effects**: Minimized through dependent interviewing
- **Recall bias**: Reduced via quarterly interviews

LINKAGE VARIABLES

- Links to **household_survey_main_2024.csv** for cross-sectional analysis
- Links to **household_roster_2024.csv** for individual tracking

USAGE NOTES

1. Account for complex survey design in analysis
2. Use panel weights for longitudinal estimates
3. Consider attrition bias in long-term trends
4. Apply appropriate variance estimation for repeated measures

FILE INFORMATION

- **Format**: CSV
- **Records**: Approximately 4,000 (1000 households × 4 waves)
- **File Size**: 2.5 MB
- **Last Updated**: 2024-01-01

CITATION

SADC Statistical Unit (2024). Panel Rotation Cohort Dataset 2023-2024.
Rotating Panel Design Based on EU-SILC Methodology.
Southern African Development Community, Gaborone, Botswana.